



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,086	03/01/2002	Denis Gallant	12494-US	9111
23553	7590	11/22/2005	EXAMINER	
MARKS & CLERK			TRAN, DZUNG D	
P.O. BOX 957			ART UNIT	
STATION B			PAPER NUMBER	
OTTAWA, ON K1P 5S7			2638	
CANADA			DATE MAILED: 11/22/2005	

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/085,086

Applicant(s)

GALLANT ET AL.

Examiner

Dzung D. Tran

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 15-18 is/are rejected.
- 7) ☒ Claim(s) 13 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 5-12, 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bala et al. U.S. patent no. 6,272,154 in view of Nygaard, jr U.S. patent no. 6,785,622.

Regarding claim 1, Bala taught an optical switch comprising:

means for recovery a data rate from an incoming serial signal (254a of figure 2, e.g. , col. 6, lines 34-36);

means for monitoring signal quality of the incoming signal by monitoring the SONET overhead signal (254a of figure 2, e.g. , col. 6, lines 43-44); and

means for providing data integrity across the transparent switching fabric by providing information on the identify and bit error rate (BER) of each signal (254a of figure 2, e.g. , col. 6, lines 445-47). Bala differs from claim 1 of the present invention in that Bala does not specifically disclose using an ingress CDR to monitor data eye opening. Nygaard, jr discloses a logic analyzer for eye diagram (col. 2, line 66 to col. 3, line 39). Since it is well recognized in the art that BERT have been used to measure

Art Unit: 2633

eye diagram or to generate eye diagram (col. 1, lines 29-35, col. 2, line 43) and since Bala discloses means for providing data integrity across the transparent switching fabric by providing information on the identify and bit error rate (BER) of each signal (254a of figure 2, e.g. , col. 6, lines 445-47). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to include the logic analyzer of Nygaard in the system of Bala for analyzing or monitoring the eye diagram (col. 3, lines 33-39 of Nygaard). One of ordinary skill in the art would have been motivated to do that in order to detect data integrity of the optical system.

Regarding claim 2, Bala taught the transparent data path is independent of input data rate (col. 3, lines 15-17).

Regarding claims 5-7, Bala discloses cross connect switch 255 for switching a signal across said switch **without modifying the data signal** (e.g. by monitoring the J0 and B1 bytes of the SONET overhead data and confirming the operation of the cross connect; col. 6, lines 21-33, 34-46. Thus, if it is not inherent, it would have been obvious that by monitoring the changing of the J0 and B1 bytes of the SONET overhead data and confirming the operation of the cross connect, Bala's reference does not adding data bit or changing data bits or deleting data bits. Furthermore, this supporting rational is based on a recognition that the claimed difference exist not as a result of an attempt by applicant to solve a problem but merely amounts to selection of expedients known to the artisan of ordinary skill as design choices.

Regarding claim 8, Bala taught the transparent data path having means to extract layer 1 performance data from the incoming signal (e.g. CDR extract the SONET section trace over head bytes, col. 10, lines 51-53).

Regarding claim 9, as far as examiner understood, Bala taught the transparent data path having means to extract layer 1 and layer 2 performance data from the incoming signal (e.g. CDR extract the SONET section trace over head bytes (e.g. layer 1) and the section BIP-8 violations (e.g. layer 2), col. 10, lines 51-53).

Regarding claim 10, Bala discloses transparent data path architecture having an active switching fabric plane and a back-up switching fabric plane (figure 2, col. 3, lines 21-22, col. 6, lines 29-33).

Regarding claim 11, Bala discloses the data and clock recovery (CDR) 254a, 254b connected to each of switch 255a, 255b for providing data integrity across the transparent switching fabric by providing information on the identify and bit error rate (BER) of each signal (col. 6, lines 45-47).

Regarding claims 12 and 18, Bala discloses means to select between said active switching plane and said back-up switching plane based on quality of data integrity between said switching fabric planes (col. 11, lines 36-65).

Regarding claim 15, Bala taught an optical switch comprising method of providing data integrity of serial data signal through a transparent data path architecture of an optical-electrical-optical (OEO) switch, the method comprising:

providing means to recover a data rate from said incoming serial data signal (col. 6, lines 34-36);

providing means to switch a signal across a switching fabric, the switching fabric including an active fabric and a back-up fabric (col. 6, lines 29-33) ;

monitoring signal quality of the incoming signal by monitoring the JO and B1 bytes of the SONET overhead signal (254a of figure 2, e.g. , col. 6, lines 43-44); and

providing data integrity across the transparent switching fabric by providing information on the identify and bit error rate (BER) of each signal and selecting the signal across respective switching fabrics having a higher signal quality (254a of figure 2, e.g. , col. 6, lines 445-47) and the transparent data path is independent of input data rate (col. 3, lines 15-17). Bala differs from claim 15 of the present invention in that Bala does not specifically disclose using an ingress CDR to monitor data eye opening. Nygaard, jr discloses a logic analyzer for eye diagram (col. 2, line 66 to col. 3, line 39). Since it is well recognized in the art that BERT have been used to measure eye diagram or to generate eye diagram (col. 1, lines 29-35, col. 2, line 43) and since Bala discloses means for providing data integrity across the transparent switching fabric by providing information on the identify and bit error rate (BER) of each signal (254a of figure 2, e.g. , col. 6, lines 445-47). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to include the logic analyzer of Nygaard in the system of Bala for analyzing or monitoring the eye diagram (col. 3, lines 33-39 of Nygaard). One of ordinary skill in the art would have been motivated to do that in order to detect data integrity of the optical system.

3. Claims 3, 4, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bala et al. U.S. patent no. 6,272,154 in view of Nygaard, jr U.S. patent no. 6,785,622 and further in view of Halgren U.S. publication no. 2002/0105696.

Regarding claims 3 and 16, as per claims above, the combination of Bala and Nygaard, jr discloses all the limitations except for switching an incoming signal independent of data protocol. Halgren discloses a transparent optical –electrical-optical switch for switching an incoming signal independent of data rate (page 2, paragraph 0025) and data protocol (page 2, paragraph 0027). Since today optical communication network is lager (e.g. transmit optical signal over different data rate, for example OC-3, OC-12, OC-48) and interface with different data protocol (e.g. Ethernet, ATM, SONET and SDH protocols). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to provide multi-protocol data recovery in the combination of Bala and Nygaard, jr invention since it is desirable to accommodate and interface with the growing number of optical fiber communication system use different protocols and different rates for increase flexibility and complexity of service.

Regarding claim 4, Bala taught a data and clock recovery (CDR) circuits 235a, 235b for recovering a data rate from an incoming signal is capable of recovering a data rate from a wide range of data rates (e.g. OC-3, OC-12 or OC-48) see col. 6, lines 39-42.

Regarding claim 17, Bala taught an optical switch comprising:
means for recovery a data rate from an incoming serial signal (254a of figure 2, e.g. , col. 6, lines 34-36);

means for extracting layer 1 and 2 performance data from the signal in a non-intrusive manner (col. 10, lines 51-53);

means for monitoring signal quality of the incoming signal by monitoring the JO and B1 bytes of the SONET overhead signal (254a of figure 2, e.g. , col. 6, lines 43-44); and

means for providing data integrity across the transparent switching fabric by providing information on the identify and bit error rate (BER) of each signal (254a of figure 2, e.g. , col. 6, lines 445-47). Bala differs from claim 17 of the present invention in that Bala does not disclose means for switching any signal, independent of data protocol. Halgren discloses a transparent optical -electrical-optical switch for switching a signal independent of data protocol (page 2, paragraph 0027). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to provide multi-protocol data recovery in Bala invention since it is desirable to accommodate and interface with the growing number of optical fiber communication system use different protocols and different rates for increase flexibility and complexity of service.

4. Claims 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung Tran whose telephone number is (571) 272-3025.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

Art Unit: 2633

Supervisor, Vanderpuye Kenneth, can be reached on (571) 272-3078.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Dzung Tran

11/16/2005

A handwritten signature in black ink, appearing to be 'KV', is positioned above the printed name and title.

**KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER**